



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.		
10/572,718	03/21/2006	Yoshiyasu Fujiwara	0388-060453	4614		
28289	7590	03/16/2009	EXAMINER			
THE WEBB LAW FIRM, P.C. 700 KOPERS BUILDING 436 SEVENTH AVENUE PITTSBURGH, PA 15219				CHEUNG, MANKO		
ART UNIT		PAPER NUMBER				
4154						
MAIL DATE		DELIVERY MODE				
03/16/2009		PAPER				

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/572,718	FUJIWARA, YOSHIYASU
	Examiner	Art Unit
	MANKO CHEUNG	4154

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 August 2008.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-9 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-9 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 21 March 2006 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>28 August 2008, 14 May 2008</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. **The abstract of the disclosure is objected to because it is not written in a single paragraph. Examiner suggests to deleting the first paragraph since it is identical to the title of the Invention. Correction is required. See MPEP § 608.01(b).**

3. **The disclosure is objected to because of the following informalities:**

On page 54-55, "BRIEF DESCRIPTION OF THE DRAWINGS" and "DESCRIPTION OF REFERENCE MARKS" should be placed right above "BEST MODE OF EMBODYING THE INVENTION" (p. 26, line 10).

Appropriate correction is required.

4. **The disclosure is objected to because of the following informalities:**

On page 1, line 15, "there is known a method" should be "there is a known method".

On page 3, line 22, "seam loss" should be ---steam loss---.

On page 5, line 14, "the amount of seam" should be ---the amount of steam---.

On page 6, line 2, "to appropriately and readily the effectiveness" should be ---to appropriately and readily evaluate the effectiveness---.

On page 6, line 16, "stem traps" should be ---steam traps---.

On page 7, line 21, "to appropriately and readily the effectiveness" should be ---to appropriately and readily evaluate the effectiveness---.

On page 8, line 9, "stem traps" should be ---steam traps---.

On page 8, line 28, "stream trap" should be ---steam trap---.

On page 9, line 4, "seam traps" should be ---steam traps---.

On page 9, line 7, "only one some steam traps" should be ---only on some steam traps---.

On page 9, line 9-10, "all the evaluation target stem traps" should be ---all the evaluation target steam traps---.

On page 9, line 18, "only one some portions" should be ---only on some portions---.

On page 9, line 29, "pining" should be ---piping---.

On page 18, line 30, "trough" should be ---through---.

On page 21, line 12, "trough" should be ---through---.

On page 22, line 20, "to evaluate. in terms" should be ---to evaluate, in terms---.

On page 24, line 14, "amount of seam" should be ---amount of steam---.

On page 24, line 23, "the existing stream trap" should be ---the existing steam trap---.

On page 25, line 3, "only one some steam traps" should be ---only on some steam traps---.

On page 25, line 16-17, "only one some portions" should be ---only on some portions---.

On page 25, line 28, "the pining" should be ---the piping---

On page 27, line 17, "stream traps" should be ---steam traps---.

On page 30, line 5-6, "the distance mans a distance" should be ---the distance means a distance---.

On page 30, line 14, "the seam loss amount" should be ---the steam loss amount---.

On page 30, line 17, "the diagnotor 1" should be ---the diagnotor 12---.

On page 30, line 28, "the stream traps" should be ---the steam traps---.

On page 30, line 30, "the stream traps" should be ---the steam traps---.1

On page 32, line 2, "a stream" should be ---a steam---.

On page 32, line 4, "stream drain" should be ---steam drain---.

On page 32, line 17, "the stream piping 3" should be ---the steam piping 3---.

On page 34, line 3-4, "the attendant will summary method improvement proposal" should be ---the attendant will summarize a method improvement proposal---.

On page 36, line 38, "relating to seam" should be ---relating to steam---.

On page 37, line 2, "pining portion" should be ---piping portion---.

On page 38, line 26-27, "a total unknown seam amount" should be ---a total unknown steam amount---.

On page 44, line 25-26, "a tap managing data source material" should be ---a trap managing data source material---.

On page 46, line 9, "the improvable unknown stem ratio" should be ---the improvable unknown steam ratio---.

Appropriate correction is required.

Claim Objections

5. Claims 1, 2, 3, and 6 are objected to because of the following informalities:

Regarding claim 1, on page 56, line 13, "based on said grasped total amounts" should be --based on said grasped total amount of steam loss--.

Regarding claim 2, on page 58, line 12-13, "the improved unknown steam ration" should be --the improved unknown steam ratio--.

Regarding claim 3, on page 58, line 2, "unknown steam ration" should be --unknown steam ratio--.

Regarding claim 6, on page 61, line 33, "the improvable unknown stem ratio" should be --the improvable unknown steam ratio--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 1, 2, 3 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, because on page 56, line 4, 7 and 10, it recites “grasping a total receiving steam amount...”, “grasping a difference” and “grasping a total amount of steam loss”, respectively. The word, “grasping,” is vague and indefinite as to what would meet such language. (e.g., Is “grasping” mean “determining” or “calculating”?)

Furthermore, on page 56, line 13-14, claim 1 recites, “based on said grasped total amounts, obtaining a ratio of said total improvable steam amount relative to **the total unknown steam amount...**” It shows that "the total unknown steam amount" must be calculated in order to obtain the ratio. However, line 7-9 of claim 1 recites “grasping a total receiving steam amount **or** grasping a difference between the total receiving steam amount and said total necessary steam amount as **a total unknown steam amount**”. The word, or, suggests that, “grasping a difference ... as a total unknown steam amount”, is not essential. Therefore, it is unclear to a person of ordinary skill in the art because such contradiction exists.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, because on page 57, line 10-12, it recites “**obtaining**, using said total trap-passed team loss amount as the total improvable steam loss amount **to obtain** the improvable unknown steam ratio”. It is redundant to use the word “to obtain” in addition to “obtaining”. Applicant may delete the word “obtaining” so that the claim is “using said total trap-passed team loss amount as the total improvable steam loss amount to obtain the improvable unknown steam ratio”.

Claim 3 is rejected under 35 U.S.C. 112, second paragraph, because on page 57, line 28-30, it recites "obtaining, using a sum total steam loss amount as the total improvable steam loss amount **to obtain** ..." It is redundant to use the word “to obtain” in addition to “obtaining”. Applicant may delete the word “obtaining” so that the claim is “using a sum total steam loss amount as the total improvable steam loss amount to obtain ...”

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, because it recites the limitation "the step of data generating step" in line 3 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Furthermore, claim 6, on page 60, line 3, it recites "the step of data generating step". It is redundant to use the word, step, twice. Applicant may change into "a data generating step".

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claim 4 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 7 of copending Application No. 10/572,760. Although the conflicting claims are not identical, they are not patentably distinct from each other because the instant claim is the same except in semantics.

The limitation of “steam traps mounted in an evaluation target steam piping” recited in claim 4 is read on the limitation of “steam traps in a client’s evaluation target system” as recited in the copending claim 7, and the limitation of “a total necessary steam amount of the evaluation target steam piping” is read on the limitation of “a total necessary steam amount of the target system” in the copending.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 1, 2 and 4, as may best be understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara (Patent Application Publication No. 20020052716) in view of Agata (Patent Application Publication No. 20020153004).**

Regarding claim 1, Fujiwara discloses a method of diagnosing a system, comprising the steps of: grasping a total amount of steam loss which can be solved by a predetermined system improvement in the evaluation target steam piping (paragraph 0085, line 1-7).

Fujiwara is silent as to the grasping a total amount of steam loss which can be solved by a predetermined system improvement in the evaluation target steam piping as a *total improvable steam loss amount*.

However, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to recognize that the total improvable steam loss

amount corresponds to the total amount of steam loss because the steam loss is the amount of steam that could be reduced, in another word, improved in any system.

Also, Fujiwara does not disclose a method of diagnosing a system, comprising the steps of: grasping a total receiving steam amount which is a total amount of steam supplied to an evaluation target steam piping and a total necessary steam amount which is a total amount of steam required by a steam-using device in the evaluation target steam piping; based on said grasped total amounts.

Agata discloses that the total receiving steam amount which is a total amount of steam supplied to an evaluation target steam piping (paragraph 0081, line 11-14) and a total necessary steam amount which is a total amount of steam required by a steam using device (figure 3, element 22, 26 and 77) in the evaluation target steam piping (paragraph 0081, line 5-9).

Moreover, Fujiwara does not disclose the step of obtaining a ratio of said total improvable steam loss amount relative to the total unknown steam amount which is the difference between the total receiving steam amount and the total necessary steam amount as an improvable unknown steam ratio.

Agata also discloses that the amounts of steam distributed to each of the heat exchangers 22, 26 and 27 are determined based on an output ratio (paragraph 0081, line 13-15) and this ratio is the relationship between the steam generated by the solar thermal collector (figure 3, element 10) and the steam used by the heat exchangers (figure 3, element 22, 26 and 77).

Since the ratio of generated and used steam could be found, as taught by Agata, the improvable unknown steam ratio could also be found; it is found inherently from the improvable steam loss amount as taught by Fujiwara and the total unknown steam amount as taught by Agata. Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to realize that the improvable unknown steam ratio in the device of Fujiwara, because the ratio was calculated based on the generated and used steam as taught by Agata; so that diagnosing result could be presented in terms of fraction.

Regarding claim 2, Fujiwara discloses the system diagnosing method according to claim 1, wherein the method further comprises a step of performing a trap operation diagnosis on a plurality of evaluation target steam traps mounted in the evaluation target steam piping (paragraph 0080, line 8-11); based on a result of the trap operation diagnosis, calculating a total trap-passed steam loss amount obtained by aggregating trap-passed steam loss amounts for the total number of evaluation target steam traps (paragraph 0085, line 1-7).

In addition, Fujiwara does not explicitly disclose the step of using said total trap-passed steam loss amount as the total improvable steam loss amount to obtain the improvable unknown steam ratio.

However, Agata discloses that the amounts of steam distributed to each of the heat exchangers 22, 26 and 27 are determined based on an output ratio (paragraph 0081, line 13-15) and this ratio is the relationship between the steam generated by the

solar thermal collector (figure 3, element 10) and the steam used by the heat exchangers (figure 3, element 22, 26 and 77).

Since the ratio of generated and used steam could be found, as taught by Agata, the improvable unknown steam ratio could also be found; it is found inherently from the improvable steam loss amount as taught by Fujiwara and the total unknown steam amount as taught by Agata.

It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to recognize that the total improvable steam loss amount corresponds to the total trap-passed steam loss amount in the device of Fujiwara because the trap-passed steam loss amount is the steam that could be reduced, in another word, improved in any system. It would also be obvious to use the improvable steam loss amount to obtain the improvable unknown steam ratio, because the ratio was calculated based on the generated and used steam as taught by Agata. The combined teaching of Agata with Fujiwara would result a determination of steam loss that could be presented in terms of fraction.

12. **Regarding claim 4,** Fujiwara discloses a method of operating an aggregating system for system diagnosis having an inputting means (figure 2, element 7a and 7b) and calculating means (figure 2, element 7c), the method comprising the steps of: receiving, by said inputting means (figure 2, element 7a and 7b), inputs of result of a trap operation diagnosis performed by a trap diagnotor for diagnosing operational conditions of a plurality of evaluation target steam traps mounted in an evaluation target

steam piping (paragraph 0084, line 1-7) and inputs a total receiving steam amount and a total necessary steam amount of the evaluation target steam piping (paragraph 0084, line 7-12); calculating, by said calculating means (figure 2, element 7c) and based on the result of the trap operation diagnosis inputted to the inputting means, a total trap-passed steam loss amount obtained by aggregating trap-passed steam loss amounts for all the evaluation target steam traps (paragraph 0086, line 1-13); based on the total receiving steam amount and the total necessary steam amount or the total unknown steam amount inputted to the inputting means, calculating the total trap-passed steam loss amount (paragraph 0085, line 1-7).

Fujiwara does not disclose a step of calculating a ratio of the total trap-passed steam loss amount relative to the total unknown steam amount which is the difference between the total receiving team amount and the total necessary steam amount, as an improvable unknown steam ratio.

However, Agata discloses that the total receiving steam amount which is a total amount of steam supplied to an evaluation target steam piping (paragraph 0081, line 11-14) and a total necessary steam amount which is a total amount of steam required by a steam using device (figure 3, element 22, 26 and 77) in the evaluation target steam piping (paragraph 0081, line 5-9). Thus, the total unknown steam amount could be found.

It would have been obvious to a person of ordinary skill in the art at the time of invention to calculate the total unknown steam amount, as taught by Agata and use with the method on Fujiwara, so that the ratio, also known as the improvable unknown steam

ratio, could be calculated and be presented in terms of fraction for better understanding on the amount of steam is being distributed to the steam using device as taught in Agata.

13. Claims 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara (Patent Application Publication No. 20020052716) in view of Agata (Patent Application Publication No. 20020153004) as applied to claim 1 above, and further in view of Nagase (WO 02/066950, also see U.S. Application Publication No. 20040122602 for English translation) (insofar as understood).

Regarding claim 3, the modified method of Fujiwara does not disclose that the system diagnosing method comprises a step of performing a steam leakage diagnosis for diagnosing steam leakage from respective piping portions of the evaluation target steam piping; based on the result of the steam leakage diagnosis, calculating a total steam leakage loss amount obtained by aggregating steam leakage loss amounts from the respective piping portions.

Nagase discloses the system diagnosing method comprises a step of performing a steam leakage diagnosis for diagnosing steam leakage from respective piping portions of the evaluation target steam piping (paragraph 0075, line 1-4, also see figure 2); calculating a total steam leakage loss amount obtained by aggregating steam leakage loss amounts from the respective piping portions (paragraph 0081, line 1-5).

Also, the modified method of Fujiwara does not disclose the step of using a sum total steam loss amount, which is a sum of said total trap-passed steam loss amount

and said total steam leakage loss amount, as the total improvable steam loss amount to obtain the improvable unknown steam loss ratio.

Nagase also discloses that the leakage diagnoses could also be performed on a steam trap (paragraph 0109, line 1-7).

It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to use the teaching, as taught by Nagase, with the modified method of Fujiwara so that the total steam loss and the ratio which is due to the leakage in the piping system and the leakage due to defected trap as shown by Nagase, could be determined and accurately presented.

14. Claim 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara (Patent Application Publication No. 20020052716) in view of Agata (Patent Application Publication No. 20020153004), and further in view of Nagase (WO 02/066950, also see U.S. Application Publication No. 20040122602 for English translation) (insofar as understood).

Fujiwara and Agata are applied as above in claim 1.

Regarding claim 5, the modified method of operating an aggregating system of Fujiwara discloses a method of operating an aggregating system for system diagnosis having an inputting means (figure 2, element 7a and 7b) and calculating means (figure 2, element 7c), the method comprising the steps of: receiving, by said inputting means (figure 2, element 7a and 7b), inputs of result of a trap operation diagnosis performed by a trap diagnotor for diagnosing operational conditions of a plurality of evaluation target

steam traps mounted in an evaluation target steam piping (paragraph 0084, line 1-7) and inputs a total receiving steam amount and a total necessary steam amount of the evaluation target steam piping (paragraph 0084, line 7-12); calculating, by said calculating means (figure 2, element 7c) and based on the result of the trap operation diagnosis inputted to the inputting means, a total trap-passed steam loss amount obtained by aggregating trap-passed steam loss amounts for all the evaluation target steam traps (paragraph 0086, line 1-13).

The modified method of operating an aggregating system does not disclose a step of receiving inputs of results of a steam leakage diagnosis performed by a leakage diagnotor for diagnosing steam leakage from respective piping portions of the evaluation target steam piping; calculating, by said calculating means and based on a result of the steam leakage diagnosis inputted to the inputting means, a total steam leakage loss amount obtained by aggregating steam leakage loss amounts from the respective piping portions.

However, Nagase discloses the step of receiving inputs of results of a steam leakage diagnosis performed by a leakage diagnotor for diagnosing steam leakage from respective piping portions of the evaluation target steam piping (paragraph 0091, line 1-6). It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to use the leakage diagnosing method, as taught by Nagase, with the modified method of operating an aggregating system as taught by Furiwara, so that the system receive not only the trap-passed steam loss amount but also the leakage steam loss amount.

Moreover, Fujiwara does not disclose a step of calculating a ratio of a sum total steam loss amount relative to the total unknown steam amount which is the difference between the total receiving steam amount and the total necessary steam amount as an improvable unknown steam ratio, said sum total steam loss amount being a sum of the total trap-passed steam loss amount and the total steam leakage loss amount, based on the total receiving steam amount and the total necessary steam amount inputted to the inputting means.

However, Nagase discloses that the total steam leakage loss amount is determined (paragraph 0095) and Agata discloses the total unknown steam amount which is the difference between the total receiving steam amount which is the total amount of steam supplied to an evaluation target steam piping (paragraph 0081, line 11-14) and a total necessary steam amount which is a total amount of steam required by a steam using device (figure 3, element 22, 26 and 77) in the evaluation target steam piping (paragraph 0081, line 5-9).

It would be obvious for a person of ordinary skill in the art at the time of the invention to combine the calculated results, as taught by Nagase, with the trap-passed steam loss result as taught by Fujiwara, so that the defective steam traps and the leakage of piping portions of a system are taken into consideration when calculating the sum total steam loss amount. Furthermore, it would be obvious to used the above modified teaching with the method as taught by Agata, so that the ratio is being calculated based on the relation of the sum total steam loss amount and the total

unknown steam amount for better understanding of what fraction of steam is actually loss.

Regarding claim 6, Fujiwara further comprises a step of data generating step performed, based on the calculation results of the calculating means, by a data generating means included in the aggregating system for system diagnosis for generating evaluation data (paragraph 0094, line 1-8).

Fujiwara also discloses a content indicative but does not explicitly disclose that contents indicative consists of at least the total unknown steam amount and the improvable unknown steam ratio.

However, Agata teaches a method for determining the total unknown steam amount and the improvable unknown steam ratio (paragraph 0081, line 9-15).

It would be obvious to a person of ordinary skill in the art at the time of the invention was made to include the total unknown steam amount and the improvable unknown steam ratio, as taught by Agata, in the content indicative of Fujiwara so that the evaluation data includes information as how the lump-sum replacement cost is being calculated.

15. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara (Patent Application No.20020052716) (insofar as understood).

Fujiwara discloses an aggregating system for system diagnosis, comprising: inputting means (figure 2, element 7a, 7b) for receiving input from a trap diagnotor of result of a trap operation diagnosis performed by the trap diagnotor (paragraph 0084, line 1-7, also see figure 2, element 3) for diagnosing operational conditions of a plurality of evaluation target steam traps mounted in an evaluation target steam piping (paragraph 0080, also see figure 1); calculating means for calculating (figure 2, element 7c), based on the trap operation diagnosis result inputted to the inputting means, a total trap-passed steam loss amount obtained by aggregating trap-passed steam loss amounts for all the evaluation target steam traps (paragraph 0102, line 1-4);

Fujiwara does not disclose an inputting means for receiving inputs of total receiving steam amount and total necessary steam amount f the evaluation target steam piping; and based on the total receiving steam amount and the total necessary steam amount, said calculating means further calculating a ratio of the total trap-passed steam loss amount relative to the total unknown steam amount which is the difference between the total receiving steam amount and the total necessary steam amount as an improvable unknown steam ratio.

However, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to recognize that the inputting means, as taught in Fujiwara could also receive the inputs of the total receiving steam amount and the total necessary steam amount, because the inputting means discloses in Fujiwara is a computer and any person of ordinary skill in the art would reasonably expect the computer, the inputting means, would receiving any known value. In this case, the

known values are the total receiving steam amount and the total necessary steam amount.

Furthermore, a person of ordinary skill in the art would recognize that the calculating means (figure 2, element 7c), as taught in Fujiwara, would also calculate a ratio of the total trap-passed steam loss amount relative to the total unknown steam amount, because the calculating means discloses in Fujiwara is a computer and any person of ordinary skill in the art would reasonably expect the computer would calculate any ratio of two given objects. In this case, the given objects are the total trap-passed steam loss amount and the total unknown steam amount. A ratio is simply a relationship between two quantities and expressed as a quotient of one divided by the other. Therefore, the calculating means discloses by Fujiwara is able to calculate a ratio, a division of two quantities.

16. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujiwara (Patent Application No.20020052716) in view of Nagase (WO 02/066950, also see U.S. Application Publication No. 20040122602 for English translation) (insofar as understood).

Regarding claim 8, Fujiwara discloses an aggregating system for system diagnosis, comprising: inputting means (figure 2, element 7a, 7b) for receiving input from a trap diagnotor of result of a trap operation diagnosis performed by the trap diagnotor (paragraph 0084, line 1-7, also see figure 2, element 3) for diagnosing operational conditions of a plurality of evaluation target steam traps mounted in an

evaluation target steam piping (paragraph 0080, also see figure 1); calculating means for calculating (figure 2, element 7c), based on the trap operation diagnosis result inputted to the inputting means, a total trap-passed steam loss amount obtained by aggregating trap-passed steam loss amounts for all the evaluation target steam traps (paragraph 0102, line 1-4);

Fujiwara does not disclose an inputting means for receiving inputs of total receiving steam amount and total necessary steam amount f the evaluation target steam piping; based on the total receiving steam amount and the total necessary steam amount, said calculating means further calculating a ratio of a sum total steam loss amount relative to the total unknown steam amount which is the difference between the total receiving steam amount and the total necessary steam amount as an improvable unknown steam ratio, said sum total steam loss amount being a sum of the total trap-passed steam loss amount and the total steam leakage loss amount.

However, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to recognize that the inputting means (figure 2, element 7a, 7b), as taught in Fujiwara could also receive the inputs of the total receiving steam amount and the total necessary steam amount, because the inputting means (figure 2, element 7a, 7b) discloses in Fujiwara is a computer and any person of ordinary skill in the art would reasonably expect the computer, the inputting means, would receiving any known value. In this case, the known values are the total receiving steam amount and the total necessary steam amount.

A person of ordinary skill in the art would also recognize that the calculating means (figure 2, element 7c), as taught in Fujiwara, would also calculate a ratio of the sum total steam loss amount relative to the total unknown steam amount, because the calculating means (figure 2, element 7c), discloses in Fujiwara is a computer and any person of ordinary skill in the art would reasonably expect the computer would calculate any ratio of two given objects. In this case, the given objects are the sum total steam loss amount and the total unknown steam amount. A ratio is simply a relationship between two quantities and expressed as a quotient of one divided by the other. Therefore, the calculating means discloses by Fujiwara is able to calculate a ratio, a division of two quantities.

Also, Fujiwara does not disclose an inputting means for receiving, from a leakage diagnotor, a steam leakage diagnosis performed by the leakage diagnotor for diagnosing steam leakage from respective piping portions of the evaluation target steam piping; calculating means for calculating, based on the result of the steam leakage diagnosis inputted to the inputting means, a total steam leakage loss amount obtained by aggregating steam leakage loss amounts from the respective piping portions for the entire evaluation target steam piping.

Nagase discloses an inputting means (figure 17, element 23) for receiving, from a leakage diagnotor (figure 17, element 1), a steam leakage diagnosis performed by the leakage diagnotor for diagnosing steam leakage from respective piping portions of the evaluation target steam piping (paragraph 0073); calculating means for calculating

(figure 17, element 17), based on the result of the steam leakage diagnosis inputted to the inputting means (figure 17, element 23), a total steam leakage loss amount obtained by aggregating steam leakage loss amounts from the respective piping portions for the entire evaluation target steam piping (paragraph 0095, line 7-11).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use the inputting means and calculating means, as taught by Nagase, in the device of Fujiwara, so that the aggregating system for system diagnosis is able to calculate the total steam losses due to the malfunction of steam traps, as taught by Fujiwara, and due to the leakage of piping portions, as taught by Nagase.

Regarding claim 9, Fujiwara discloses the aggregating system for system diagnosis according to claim 7 or 8, wherein the method further comprises data generating means (figure 8, element 15; also see figure 2, element 7c) for generating evaluation data (figure 8, element A and B) based on the calculation results of the calculating means (paragraph 0094).

Fujiwara does not disclose that the evaluation data having contents indicative of at least the total unknown steam amount and the improvable unknown steam ratio.

The evaluation data generated by Fujiwara has a content indicative of the monetary converted value (A and B) of the total steam loss amount. It would be obvious to a person of ordinary skill in the art at the time of the invention was made to recognize that the total steam loss amount could also be include in the content

indicative; thus, it would be obvious to include the relating result, the total unknown steam amount and the improvable unknown steam ratio, in the evaluation data.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,880,128 to Nguyen teaches an equipment evaluating system for evaluating steam traps.

U.S. Patent No. 6,332,112 to Shukunami et al. teaches a device and processing unit for detecting and calculating vibration of steam traps.

U.S. Patent No. 5,535,136 to Standifer teaches an apparatus and method for quantifying a leak flow rate from a fluid leak site in a piping system.

U.S. Patent No. 4,898,022 to Yumoto et al. teaches a detector for detecting a steam trap operation.

U.S. Patent No. 4,788,849 to Yonemura et al. teaches a device for monitoring steam trap.

U.S. Patent No. 4,727,750 to Yonemura teaches a device for detecting steam leakage.

U.S. Patent No. 4,039,846 to Vance teaches an apparatus for controlling steam-heating power plant

U.S. Patent No. 3,827,283 to Lerner et al. teaches an apparatus for measuring fluid leakage.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MANKO CHEUNG whose telephone number is (571)270-7917. The examiner can normally be reached on Monday-Thursday 8am-5pm, Friday 8am-12noon.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham can be reached on (571)272-2405. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Seungsook Ham/
Supervisory Patent Examiner,
Art Unit 4154

.M.C./